

Claims

1. An ink-jet ink comprising (i) water and (ii) a polymer having a plurality of 1,2- and/or 1,3-diol groups along the polymer backbone and having pendant photo cross-linkable groups attached thereto.  
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2. An ink as claimed in claim 1, wherein the polymer is a polyvinyl alcohol.
3. An ink as claimed in claim 1 or 2, wherein the pendant photo cross-linkable groups are styryl pyridinium and/or acrylate groups.  
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4. An ink as claimed in any preceding claim, where the pendant cross-linkable group is present from 0.1 to 25% by weight based on the weight of the polymer.
- 15 5. An ink as claimed in any preceding claim, wherein the polymer is polyvinyl alcohol which is derived from polyvinyl acetate in which at least 70% of the acetate groups are hydrolysed.
6. An ink as claimed in any preceding claim, wherein the polymer has a degree of polymerisation of 350 to 2500.  
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7. An ink as claimed in any preceding claim, wherein the polymer is present from 0.5 to 60% by weight based on the total weight of the ink.
- 25 8. An ink as claimed in any preceding claim, wherein the water is present from 10 to 90% by weight based on the total weight of the ink.
9. An ink as claimed in any preceding claim, further comprising UV reactive monomers and/or oligomers.  
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10. An ink as claimed in any preceding claim, wherein the UV reactive monomers and/or oligomers are (meth)acrylates, epoxides or oxetanes.
11. An ink as claimed in any preceding claim, further comprising a photoinitiator.

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12. An ink as claimed in any preceding claim, further comprising a colorant.

13. An ink as claimed in any preceding claim, having a viscosity of less than 50 mPas at  
5 25°C.

14. A polyvinyl alcohol having pendant photo cross-linkable groups attached thereto,  
wherein the groups are styryl pyridinium and acrylate groups with the proviso that the  
groups are not derived from 4-(2-acryloyloxyethoxy)benzaldehyde and 4-(4-  
10 formylphenylethenyl)-1-methylpyridinium methosulfate or 4-(2-  
acryloyloxyethoxy)benzaldehyde and 1-(3-ethoxycarbonylpropyl)-4-[2-(4'-  
formylphenyl)ethenyl]pyridinium bromide.

15. A polyvinyl alcohol as claimed in claim 14, wherein the groups are derivable from an  
15 acryloyloxyalkyl formylbenzoate and a formylphenylethenyl pyridinium.

16. A polyvinyl alcohol as claimed in claim 15, wherein the groups are derivable from 2-  
acryloyloxyethyl 4-formylbenzoate and 4-(4-formylphenylethenyl)-1-methylpyridinium.

## Claims

*ink-jet*

1. An ink comprising (i) water and (ii) a polymer having a plurality of 1,2- and/or 1,3-diol groups along the polymer backbone and having pendant photo cross-linkable groups attached thereto.  
5
2. An ink as claimed in claim 1, wherein the polymer is a polyvinyl alcohol.
3. An ink as claimed in claim 1 or 2, wherein the pendant photo cross-linkable groups are styryl pyridinium and/or acrylate groups.  
10
4. An ink as claimed in any preceding claim, where the pendant cross-linkable group is present from 0.1 to 25% by weight based on the weight of the polymer.
- 15 5. An ink as claimed in any preceding claim, wherein the polymer is polyvinyl alcohol which is derived from polyvinyl acetate in which at least 70% of the acetate groups are hydrolysed.
- 20 6. An ink as claimed in any preceding claim, wherein the polymer has a degree of polymerisation of 350 to 2500.
7. An ink as claimed in any preceding claim, wherein the polymer is present from 0.5 to 60% by weight based on the total weight of the ink.
- 25 8. An ink as claimed in any preceding claim, wherein the water is present from 10 to 90% by weight based on the total weight of the ink.
9. An ink as claimed in any preceding claim, further comprising UV reactive monomers and/or oligomers.  
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10. An ink as claimed in any preceding claim, wherein the UV reactive monomers and/or oligomers are (meth)acrylates, epoxides or oxetanes.
11. An ink as claimed in any preceding claim, further comprising a photoinitiator.

12. An ink as claimed in any preceding claim, further comprising a colorant.

13. An ink as claimed in any preceding claim, having a viscosity of less than 50 mPas at  
5 25°C.

~~14. An ink as claimed in any preceding claim, wherein the ink is an ink jet ink.~~

**14**

10 **15** A polyvinyl alcohol having pendant photo cross-linkable groups attached thereto,  
wherein the groups are styryl pyridinium and acrylate groups with the proviso that the  
groups are not derived from 4-(2-acryloyloxyethoxy)benzaldehyde and 4-(4-  
formylphenylethenyl)-1-methylpyridinium methosulfate or 4-(2-  
acryloyloxyethoxy)benzaldehyde and 1-(3-ethoxycarbonylpropyl)-4-[2-(4'-  
formylphenyl)ethenyl]pyridinium bromide.

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**16** A polyvinyl alcohol as claimed in claim **15**, wherein the groups are derivable from an  
acryloyloxyalkyl formylbenzoate and a formylphenylethenyl pyridinium.

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20 **17** A polyvinyl alcohol as claimed in claim **16**, wherein the groups are derivable from 2-  
acryloyloxyethyl 4-formylbenzoate and 4-(4-formylphenylethenyl)-1-methylpyridinium.